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... agricultural tools, and the ...
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OTHER: 000

IVANENKO, B., starshiy nauchnyy sotrudnik; CHUBINISHVILI, TS., nauchnyy
sotrudnik.

Strawberry stem nematode control. Zashch. rast. ot vred. i bol .
10 no.9:23-24 '65. (MIRA 18:11).

1. Severo-Kavkazskiy institut sadovodstva i vinogradarstva,
Krasnodar (for Ivanenko). 2. Institut sadovodstva, vinogradarstva
i vinodeliya, Tbilisi (for Chubinishvili).

IVANENKO, B.F.; AL'PERIN, A.S.

In connection with V.S.IAsinski's article "Investigating the effectiveness of drying wood in the form of boards and rough stock." Der.prom. 9 no.2:27 F '60. (MIRA 13:6)

1. Zhitomirskiy mebel'nyy kombinat.
(Wood—Drying)
(IAsinski, V.S.)

GROMOV, Yu.N.; IVANENKO, B.G., nauchnyy sotrudnik

Mechanized filling station. Zashch.rast.ot vred. i bol. 5
no.2:14-15 F '60. (MIRA 15:12)

1. Zaveduyushchiy otdelom mekhanizatsii Severo-Kavkazskogo instituta
sadovodstva i vinogradarstva (for Gromov).
(Spraying and dusting equipment)

Ivanenko, B. I.

Ivanenko, B. I. - "Cuban groves," *Leto Koz-vo*, 1948, No. 3, p. 41-46

SO: U-3600, 10 July 53, (Leto is 'Zhurnal 'nykh Stroy, No. 6, 1949).

IVANENKO, B. I.

"Basic courses in wood typology," *Razvitiye rus. lesovodstva*, Issue 1, 1948, p. 32-111-
Bibliog: 186 items

SO: U-3850, 16 June 53, (*Letopis 'Zhurnal 'nykh Statey*, No. 5, 1949).

IVANENKO, B. I.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

<u>Name</u>	<u>Title of Work</u>	<u>Nominated by</u>
Tyurin, A. V.		
Zhukov, A. B.	"Investigation of Oak	
<u>Ivanenko, B. I.</u>	Forests of the USSR	All-Union Scientific Research
Lositskiy, K. B.	and Measures for Culti-	Institute of Forestry
Kharitonovich, F. N.	vating them"	
Napalkov, N. V.		

SO: W-30604, 7 July 1954

IVANENKO, B. I.

Translation from: Referativnyy zhurnal, Geografiya, 1957, Nr 6,
p 146 (USSR) 14-57-6-12819

AUTHOR: Ivanenko, B. I.

TITLE: The Northern Caucasus Mountains Must Remain Green
(Gory Severnogo Kavkaza dolzhny takzhe ostat'sya
zelenymi)

PERIODICAL: Les. khoz-vo, 1956, Nr 11, pp 25-29

ABSTRACT: Mountain forests of northern Caucasus are extremely important for water storage, water control, and soil conservation. But since 1943 most of them have been assigned to the third group of forest industries. This means that they can be logged extensively. The exploitation of northern Caucasian beech, fir, and spruce forests has gone on for more than 20 years; hence, their timber stands no longer contain valuable forest trees, and some areas have been denuded so that they

Card 1/2

Ivanenko, B.I.

USSR/Forestry - Forest Economy.

K-4

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10588

Author : Ivanenko, B.I.

Inst : Scientific Institute of Forestry and the Mechanization of Forest Economy.

Title : Principal Lumbering Operations /Rubki/ in the Mountain Forests of the Northern Caucasus.

Orig Pub : Sb. rabot po lesn. kh-vu. Vses. n.-i. in-t lesovodstva i mekhanizats. lesn. khOva, 1956, No 32, 86-98

Abstract : The unsatisfactory replacement of the main tree species on heavily and relatively heavily cut over areas of the Northern Caucasus mountain forests during the last 20 years has led to their reforestation with secondary species. Investigations in the forests of the Krasnodar and Stavropol' Forest Economy Administrations, and also in the Severo-

Card 1/2

K-4

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10588

Osetinskaya ASSR, have determined that as a result of heavy lumbering operations high-trunk oak groves have been replaced by low-trunk ones, other low-value species, and brush. In the oak groves of the foothills with south, southeast, and southwest expositions it is recommended that heavy lumbering cease and instead that voluntary and sanitary lumbering operations be conducted with the aim of preventing erosion. In higher quality oak forests it is possible to apply the seeding-cutting method of lumbering in two or three stages. The eastern beech replaces itself satisfactorily only when the seeding-cutting lumbering method is used and when at the same time the beech plantings are thinned out to a density of 0.5. It is recommended that seeding-cutting lumbering methods be utilized in the beech forests in two or three stages. Gradual or voluntary lumbering methods should be used in the fir forests. Some recommendations are given on the technical aspects of lumbering.

Card 2/2

IVANENKO, B.I., doktor sel'skokhoz.nauk

[Methods of zoning on the basis of forest types] Metodika lesorastitel'nogo raionirovaniia. Moskva, Nauchno-issl. in-t lesovodstva i mekhanizatsii lesnogo khoz., 1960. 13 p.

(MIRA 14:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lesovodstva i mekhanizatsii lesnogo khozyaystva (for Ivanenko).
(Forests and forestry)

IVANENKO, Boris Ivanovich, doktor sel'khoz. nauk; KAZAKOVA, Ye.D.,
red.; SOKOLOVA, N.N., tekhn. red.

[Phenology of trees and shrubs] Fenologiya drevesnykh i kustar-
nikovykh porod. Moskva, Sel'khozizdat, 1962. 182 p.

(MIRA 16:1)

(Woody plants) (Phenology)

IVANENKO, B.P.

Improving transportation on the Unzha, Šura, and Vetluga
Rivers. Rech.transp. 18 no.9:6-7, S '59. (MIHA 13:2)

1. Nachal'nik sluzhby dvizheniya Gor'kovskogo lineynogo
parokhodstva.
(Volga Valley--Inland water transportation)

IVANENKO, D.

Tetradic and compensational theory of gravitation. Doklady BAK
17 no.9:301-304 '64.

1. Moscow State University, U.S.S.R. Submitted April 17, 1964.

IVANENKO, D., prof.

New problems of gravitation. Nauka i tekhnol. mladenk 16 no.7/8:
59-63 JI-Ag '64

ACCESSION NR: AP4038552

S/0053/64/083/001/0190/0196

AUTHOR: Ivanenko, D.; Lomsadze, Yu.

TITLE: Conference on the theory of elementary particles (Uzhgorod, 14--23 October 1963)

SOURCE: Uspehi fizicheskikh nauk, v. 83, no. 1, 1964, 190-196

TOPIC TAGS: elementary particle, dispersion relation, strong interaction, weak interaction, electromagnetic interaction, gravitation

ABSTRACT: The regular (fifth) conference on the theory of elementary particles, organized by the Department of Theoretical Physics of the Uzhgorodskiy universitet, was convoked by the Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya U.S.S.R. About 100 persons from Moscow, Dubna, Kiev, Minsk, Tbilisi, Novosibirsk, Baku, Dnepropetrovsk, Uzhgorod and other centers participated. Two classes of papers were delivered - the "Autumn School" and original papers. The first group was delivered by the following: Ya. B. Zel'dovich (AN SSSR) - history of neutrino discovery and investigation of its properties. D. Ivanenko (MGU) - possible 'maximally' unified picture of the world. N. N. Neyman (ITEP AN SSSR) - proof of asymptotic equality of total and differential cross sections for

Card | 1/5

ACCESSION NR: AP4038552

scattering of particles and antiparticles. D. Ya. Petrina (In-t matematiki AN UkrSSR) - Landau curves and complex singularities of Feynman-diagram contributions. S. G. Matinyan (In-t fiziki AN GruzSSR) - particle production at ultrahigh energies. E. M. Lipmanov (Volgogradskiy pedinstitut) - review of theory of weak interactions. N. V. Mitskevich (Universitet Druzhby* narodov im. P. Lumumby*, Moscow) - a review of research on the energy of the gravitational field. V. A. Filimonov and A. M. Kol'chuzhkin (Tomskiy politekhnicheskii in-t) - review of discovery and development of theory of hypernuclei. A. S. Zhukarev (MGU) - main empirical information on all known particles and resonances.

The original papers covered five topics. 1. The dispersion approach: V. I. Mal'chenko (Dnepropetrovskiy un-t) - elastic scattering of spinless relativistic particles by a potential. V. A. Maminskiy and Yu. V. Orlov (NIIFYAF MGU) - dispersion allowance for interactions in first and final states in direct nuclear reactions. A. F. Plish (In-t matematiki AN UkrSSR) - integral representation for vertex functions. V. I. Lend'yel and B. M. Ernst (Uzhgorodskiy universitet) - attempt at elimination of phase-shift analysis ambiguity. A. S. Zhukarev and Yu. G. Pavlenko (Fizicheskii f-t MGU) - combination of pole approximation and isobar mode. Ya. I. Granovskiy (IFYAF AN KazakhSSR) - convenient partial wave expansions. Yu. M. Lomsadze, S. S. Tokar', I. M. Shuba (Uzhgorodskiy universitet) - character of motion

Card 2/5

ACCESSION NR: AP4038552

ACCESSION NR: AP4038552

of poles of Bethe-Salpeter partial amplitude.

2. Strong interactions: Yu. M. Kazarinov and V. S. Kiselev (OIYaI, Dubna) - phase shifts at 210 and 147 MeV. Yu. P. Kumekin, M. G. Meshcheryakov, S. B. Nurushev, and G. D. Stoletov (OIYaI, Dubna) - measurement of Wolfenstein triple parameters. L.S. Azhgirey (OIYaI, Dubna) - phase shift analysis of pp scattering at 660 and 435 MeV. V. A. Yarbe (OIYaI, Dubna) - survey of experimental data on $\pi\pi$ interactions at low energy. K. D. Tolstov (OIYaI, Dubna) - independence of transverse momentum of nucleons in inelastic collisions. L. G. Moroz and V. N. Tret'yakov (In-t fiziki AN SSSR) - electric and magnetic polarizabilities of neutrons. A. S. Zhukarev and Yu. G. Pavlenko (MGU) - calculation of the $\pi N \rightarrow \pi K K$ reaction in the pole approximation. V. I. Kushtan (Fizicheskii f-t MGU) - determination of the quantum numbers of resonances by a modified Chew method. I. A. Kuchin, and P. A. Usik (IYaF AN KazakhSSR) - inelastic NN interaction via one-meson exchange. V. V. Balashov, G. Ya. Korenman, T. S. Macharadze (NIYaF MGU) - classification of partial transitions in photoproduction of charged pions. V. A. Filippov (Tomskiy politekhnicheskii institut) - possible production of Σp hypernuclei in pp collision.

3. Weak and electromagnetic interactions. V. A. Petrun'kin (FIAN SSSR) - quadratic terms in photon scattering amplitude expansion. A. A. Sokolov, I. M.

Card 3/5

ACCESSION NR: AP4038552

Ternov, V. G. Bagrov, and R. A. Rzayev (MGU) - possibility of polarization of electron beams in a magnetic field. A. A. Bogush and A. I. Bolsun (In-t fiziki AN BSSR) - compact matrix representation of wave functions of polarized vector particles. A. I. Mukhtarov (Azerbaydzhanskiy un-t) - elastic scattering of electrons and positrons by electrons. I. M. Nadzhafov, N. Tenyakov, and A. I. Mukhtarov (Azerbaydzhanskiy un-t) - angular and energy distribution in photon-nucleus interactions. V. S. Vanyashin (Dnepropetrovskiy un-t) - account of "catastrophic" electromagnetic boson interaction. L. M. Tomil'chik (In-t fiziki AN BSSR) - contradictions in usual electrodynamic scheme. L. D. Palgi (IFA AN ESSR) - effect of intermediate charged boson. A. I. Bolsun and I. S. Satsunkevich (In-t fiziki AN BSSR) - differential and total photoproduction cross sections. I. B. Bobokzhanov, V. M. Ivanenko, L. L. Kashkarov, V. V. Cherdyn'tsev (Tadzhikskiy universitet) - asymmetry of neutrons of $\mu\pi$ reactions on lead. E. M. Lipmanov (Volgogradskiy pedinstitut) - weak interactions with one and two lepton charges. V. V. Balashov, N. M. Kabachnik, and R. A. Eremzhyan (NIYaF MGU) - partial probabilities, polarizations, and angular distribution of recoil nuclei as functions of the nuclear wave functions. G. Ya. Korenman and R. A. Eremzhyan (NIYaF MGU) - branching ratio and asymmetry coefficient of tritium.

4. Theory of gravitation. Ya. I. Granovskiy (IYaF AN KazakhSSR) - corrections to Newtonian theory of gravitation. Yu. S. Vladimirov (MGU) - cross section of

Card 4/5

ACCESSION NR: AP4038552

fermion scattering by a Schwarzschild field. N. V. Mitskevich - solution of Dirac equation, M. P. Korkina and M. A. Pevzner (Dnepropetrovskiy un-t) - calculation of gravitational corrections to electric and magnetic moments of the electron. V. S. Brezhnev (MGU) - method of canonical transformations.

5. General problems. A. A. Borgardt (Dnepropetrovskiy un-t) - general computation technique for quantum theory of boson fields. Yu. A. Ry*lov (MGU) - universal six-dimensional event space in lieu of 4-space. M. N. Shirokov (OIYaI) - quantum dynamics of scalar particle. A. I. Naumov (MGU) - possible vacuum helicity degeneracy of self-coupled spinor field. A. D. Sukhavov (NIFKhI im. Karpova) - some fine points in S-operator formalism.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: NP, GP

NR REF SOV: 000

OTHER: 000

Card 5/5

IVANENKO, D.

Possibilities of a unified theory. Izv. vys. ucheb. zav.; fiz. 8 no.3:
5-10 '65. (MIRA 18:9)

1. Moskovskiy gosudarstvennyy universitet.

L 22870-66 EWT(1)/EWT(m)/T OW

ACC NR. AP6012816

SOURCE CODE: UR/0308/65/001/004/0479/0482

AUTHOR: Ivanenko, D. D.; Kurdgelaidze, D. F.

ORG: Department of Physics, Moscow University, (Fizicheskiy fakul'tet Moskovskogo universiteta)

TITLE: A hypothesis concerning quark stars ^{12, 55}

SOURCE: Astrofizika, v. 1, no. 4, 1965, 479-482

TOPIC TAGS: quark, barion, degenerated electronic gas, neutron star, barion star, quark star, degenerated hyperon gas, ultravioletic quark

ABSTRACT: ^{19, 24, 25} Quarks are hypothetical particles from which intensively interacting particles such as mesons, barions, and resonons are generated. The mass of quarks is considerably greater than that of barions and their charge is a fraction of barion and electric charges. Quarks may be real particles, but they have not been observed. A compressed star contains degenerated electronic gas in which an "impression" of electrons into protons, disorganization of the nucleus, and transition to a neutron star take place. A further compression causes the transition to degenerated hyperon Fermi gas. Continued compression may result in the hypothetical particles' quarks. The transition of a barion star into a quark star occurs according to the formula

$$B \rightarrow Q_1 + Q_2 + Q_3$$

Card 1/2

L 22870-66

ACC NR: AP6012816

2

where B denotes barions and Q_1 quarks. A series of formulas explain the possible transition and the exchange of kinetic energy between barions and quarks. The condition of equilibrium of quark density is determined by the Fermi equation for the boundary energies of barions and three quarks. Quarks can be nonrelativistic and ultrarelativistic. The latter case is associated with very high density for transition according to the formula, and it can occur only within some barion stars. A star with such a high central density can be in a quasi-stationary state. The transition of barions into quarks in a barion star is associated with a transformation of kinetic energy into the quark mass. Local fluctuations of the density of barions may cause a deficit of barions in the star, and an inverse process of transition of quarks into barions can occur with a deliverance of bulk kinetic energy. A rapid transition of quark star to barion star may be connected with an explosion. The authors express thanks to V. A. Ambartsumyan and G. S. Saakyan for valuable comments. [EG]

SUB CODE: 03/ SUBM DATE: 17Jul65/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS:

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Card 2/2 LC

197 AND 198 GROUPS

100 AND 110 GROUPS

2

CA

PROCESSES AND PROPERTIES INDEX

Neutrons and nuclear electrons. D. IVANENKO. *Physik. Z. Sowjetunion 1, 200-21 (1932)*.—Some nuclear anomalies can be explained if the nucleus contains both neutrons and protons. G. M. MURPHY

Determination of the number of isotopes. R. OARON AND D. IVANENKO. *Physik. Z. Sowjetunion 2, 99-100 (1932)*.—The constitution of nuclei is considered on the assumption that all nuclear electrons are in neutrons, and that the neutrinos as elementary particles satisfy the antisym. statistics. It is possible to calculate the no. of isotopes. R. J. RIMMBAUM

COMMON ELEMENTS

COMMON SYMBOLS INDEX

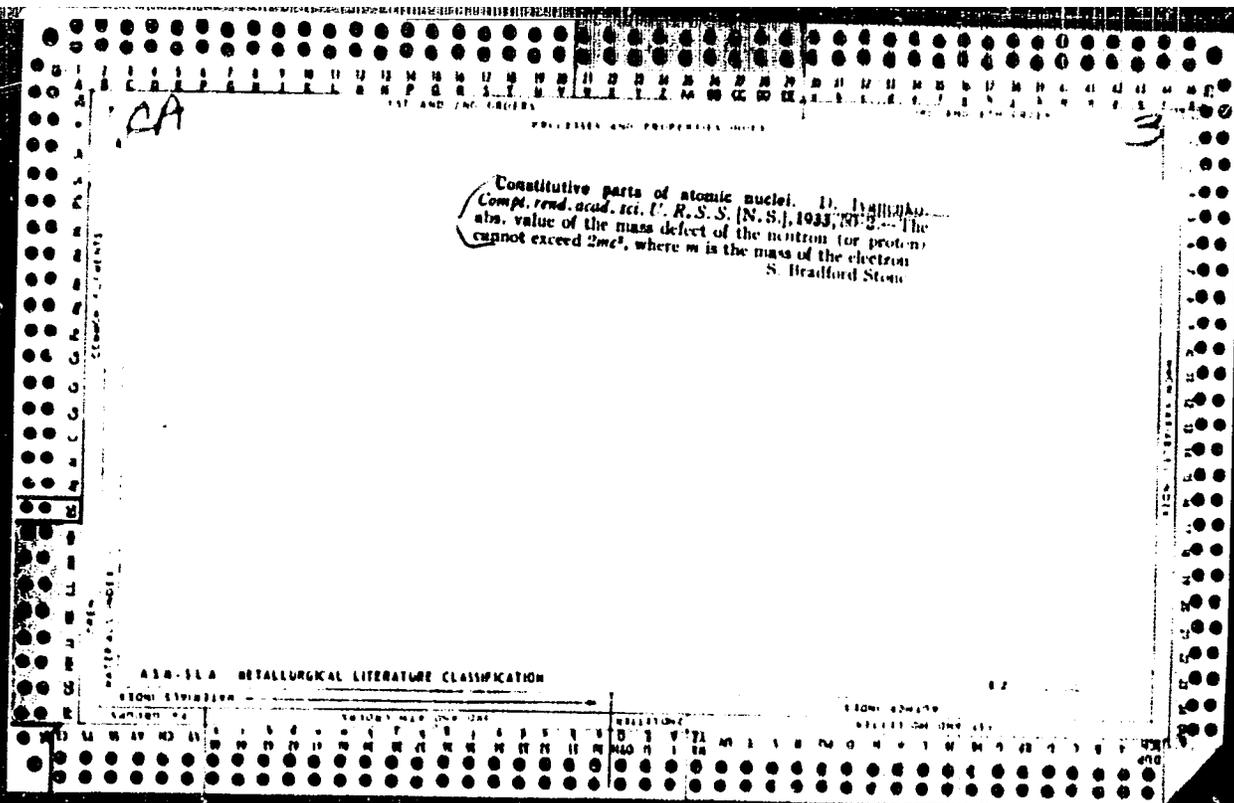
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

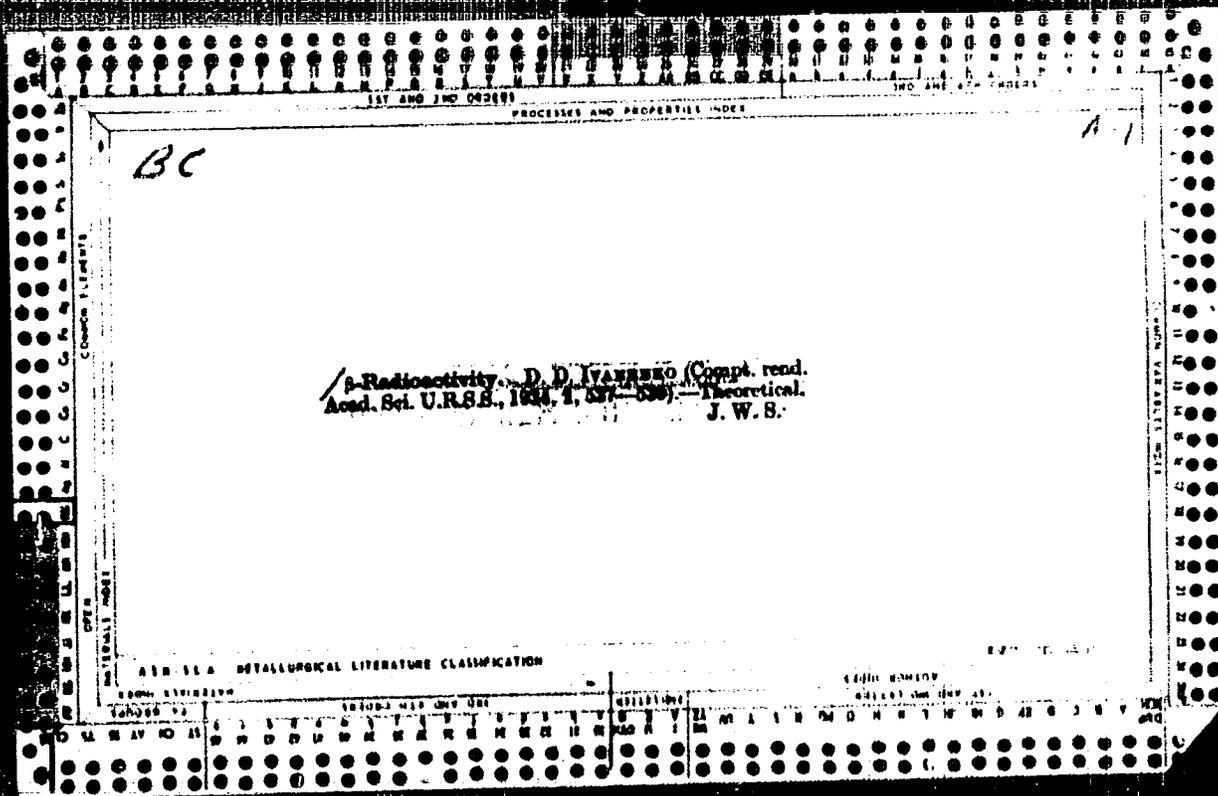
197 AND 198 GROUPS

100 AND 110 GROUPS

197 AND 198 GROUPS

100 AND 110 GROUPS





PROCESSES AND PROPERTIES INDEX

117 AND 118 COLUMNS

3

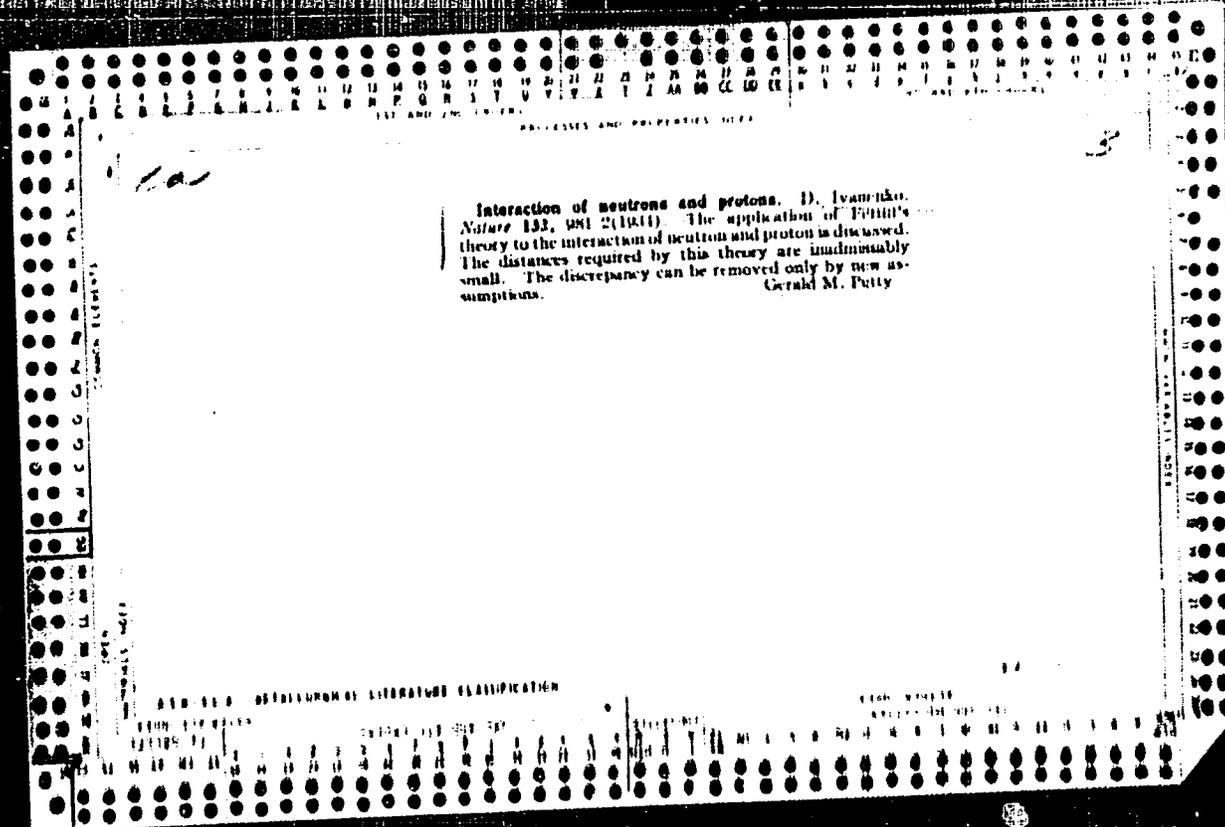
CA

The transmutation of hydrogen into neutrons D. D. Ivanenko. *Compt. rend. acad. sci. U. R. S. S. 2*, 136 (1934) (in English 153-7) (1934).—On the assumption that the transmutation of H into neutrons arises through three-body collisions between protons, electrons and neutrons, it is shown that the cross section for transmutation will be so small as to be beyond expt. observation. From the requirement that the 1s electron orbit of an atom must not come within the distance h/mc from the nucleus if it is to be stable and avoid electron-positron pair production, it is shown that the limiting stable atom will have an at. no. of 137.

Morris Muskat

METALLURGICAL LITERATURE CLASSIFICATION

117 AND 118 COLUMNS



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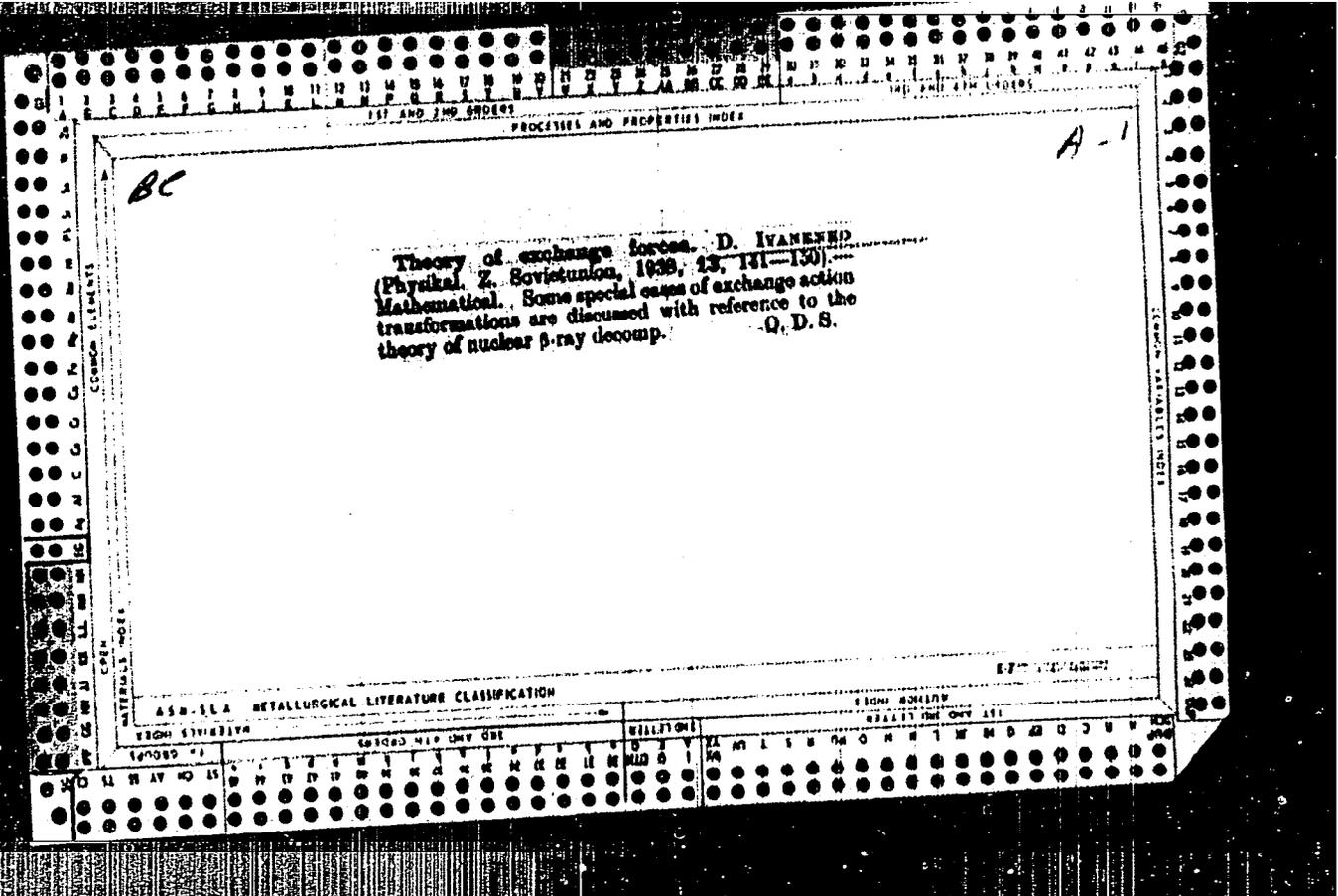
PROCESSES AND PROPERTIES INDEX

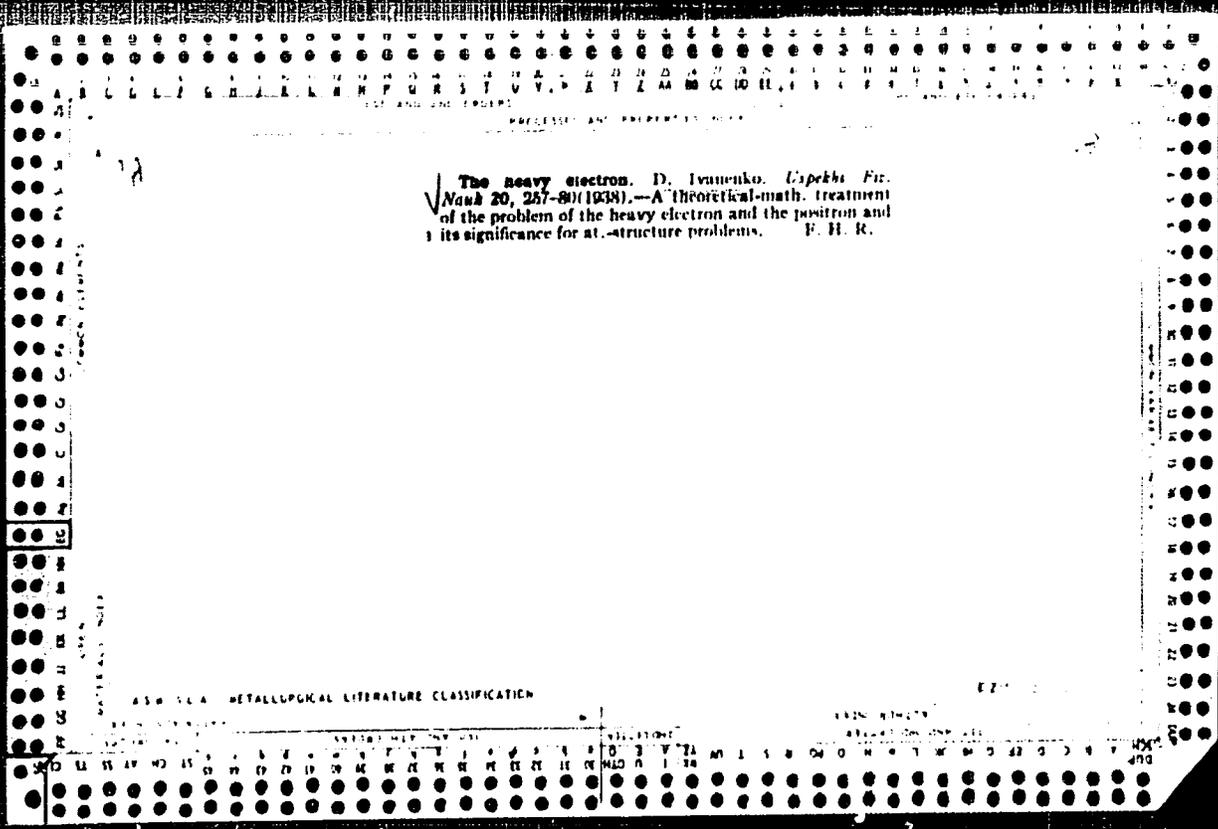
Q-1

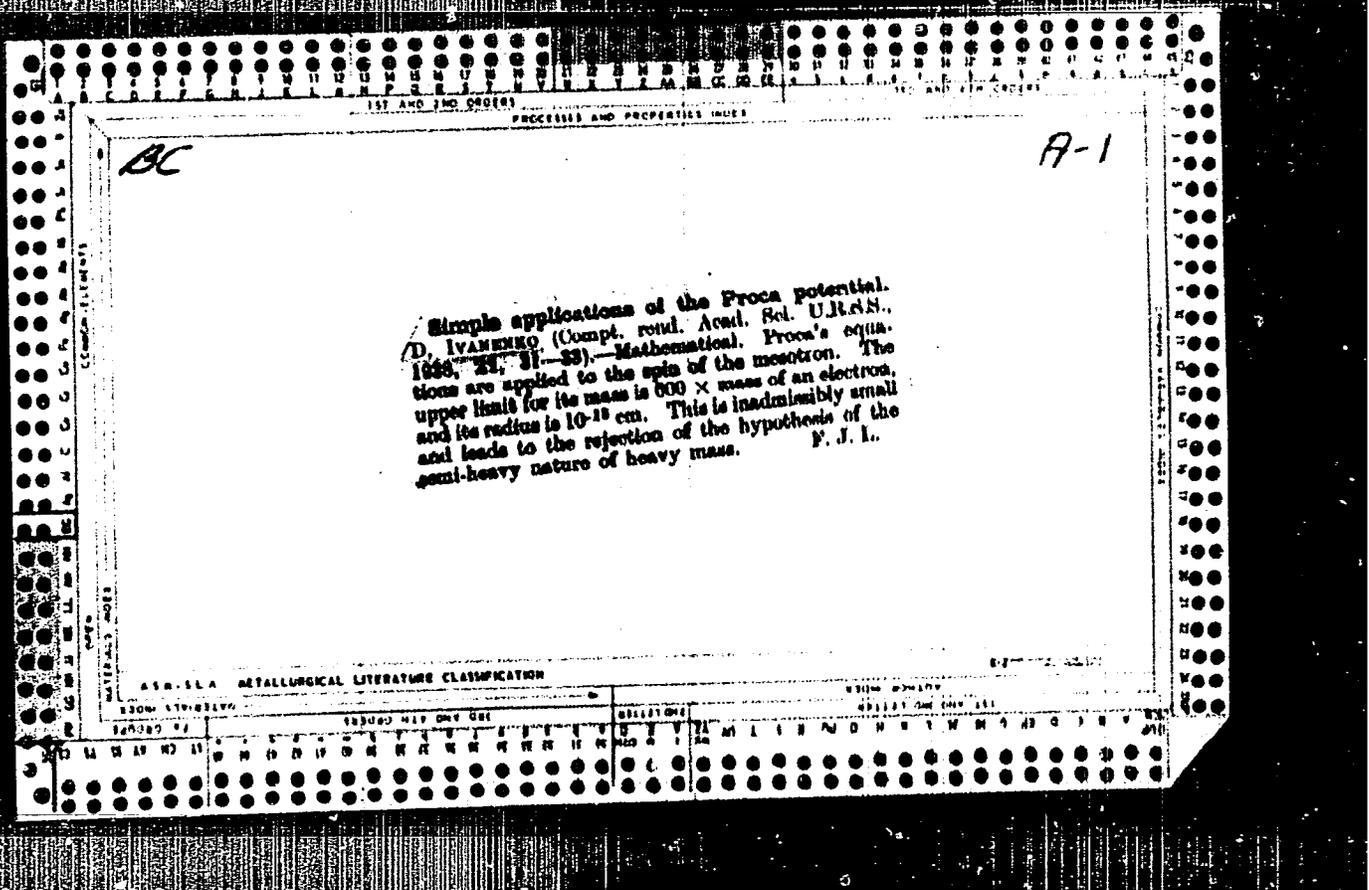
Neutrino theory of light. D. IVANKO and
A. SOKOLOV (Physikal. Z. Sovietunion, 1936, 9,
692-695).—Mathematics. O. D. S.

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
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1. GENERAL

"Generalized Wave Equation and Classical Mesodynamics," Dok. AN, 26, No. 1, 1940.

Ural State University im. Gor'kiy, Sverdlovsk.

IVANENKO, D.

"Classical Theory of the Scattering of Mesons," Dokl. Ak. Nauk SSSR, 28, 411-414, 1940.

The theory is developed by the introduction of a Hertz vector. The motion of a heavy nucleus is described non-relativistically, the quasi-electric part of the momentum tensor and the magnetic part of the total polarisation tensor being neglected. Formulae are deduced for the quasi-electric and quasi-magnetic scatterings on the assumption that the nucleons are point particles. A generalization of the theory is proposed in the form of a non-linear theory. This leads to the introduction of quasi-electric and magnetic nuclear form factors, making scattering at small angles more probable. The experiments of Bethe and Schmeiser on hard showers seem to indicate the existence of such small-angle scattering.

Ural State University im A. M. Gor'kiy, Sverdlovsk

(Battelle)

3

CA

Some remarks concerning the theory of mesons. (1.)
 Ivanenko. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 11, 107-9(1941); *J. Phys.* (U. S. S. R.) 3, 417-19(1940)(in English); *cf. C. A.* 33, 6843. — No complete theory exists so far for the isotopic displacement of spectral lines, particularly in the cases of lighter atoms where the observed and theoretically predicted effects are sometimes of opposite signs. I. points out that the meson theory of the nuclei leads to the assumption of an attraction between neutrons and electrons which can balance the dirh. of the charges in the nucleus of the heavier isotope and explain the sign inversion. The same interaction can also be of importance in other cases, for instance in the anomalous scattering of fast electrons by the light nuclei. A second remark concerns the scattering of mesons by a nuclear quasmagnetic moment. The quasmagnetic part of the meson wave field is assumed to be composed of 3 parts: H_0 , the external meson field, H_1 the proper field of magnetic dipole and $R = 2m_0/c^2$, where R = damping, m = moment, ϵ = ratio of magnetic and mech. moments and c = light velocity. The cross section deduced on this basis does not increase with the velocity of mesons, in agreement with the expts. M. Magat

Ural State University im. Gor'kiy, Sverdlovsk.

ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION

The dipole character of the meson, and the difficulties of meson theory. Phys. Rev., Vol. 60, pp. 277-278, August 1, 1941.

"On the Dipolness of Mesons and the Difficulties of the Proca Theory," Zhur.
Eksper. i Teoret. Fiz., 12, No. 10, 1942. Ural State University im. A. M. Gor'kiy,
Sverdlovsk.

"On the Theory of Bi-Particles," Zhur. Eksper. i Teoret. Fiz., 13, No. 5 7-8,
1943.

Sverdlovsk State University.

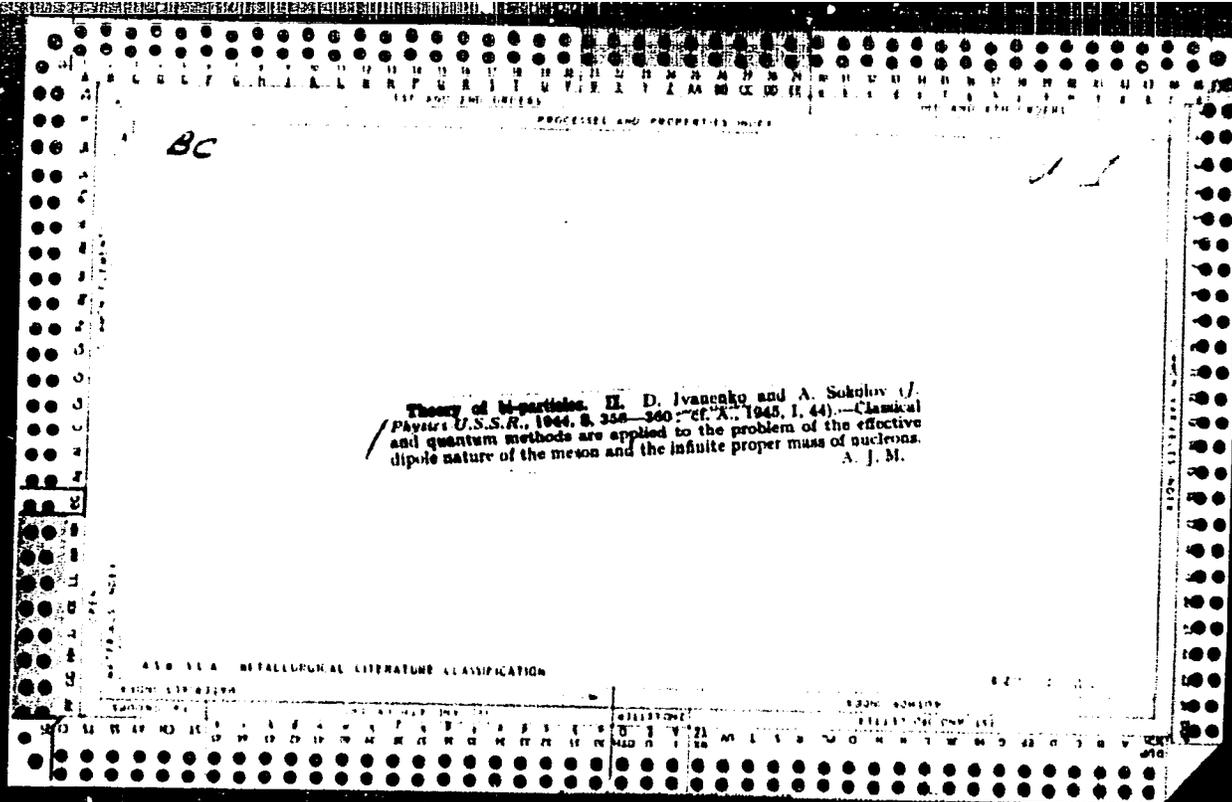
Physics Inst., Moscow Order of Lenin State University im. M. V. Lomonosov.

PROCESSES AND PROPERTIES INDEX

Theory of μ -particles. D. Ivanenko and A. Sokolov (*J. Physics, U.S.S.R.*, 1944, 8, 54--55).--A criticism of Ginsburg's theory of particles with variable mass and spin (cf. preceding abstracts and A., 1943, 1, 113). L. Landau

A.S.T.M. METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX													ALLIED INDEX												
METALS													NON-METALS												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			



... and Kobzarevskiy, I.

"Maximum energy attainable in a betatron," Dokl. Ak. Nauk SSSR (1944), 44, 315-316.

An equation giving the max. val. (E) of the energy which can be attained in a betatron has been derived. E varies inversely as the applied magnetic field and directly as the square root of the energy gained in the rotational electric field per unit path.

Moscow State University; Phys.-Tech. Inst, AS USSR, Leningrad.

CA

6

Metastable combinations of elemental particles. D. D. Ivanenko and A. A. Sokolov. *Vestnik Moshov. Univ.* 1947, No. 6, 3-7. —Cross sections are calcd. for the combination of a meson with an electron of opposite sign to form a metastable "planetary" system at various velocities v of the incident particle. When $v < ac$ (where a is the fine-structure const. and c is the velocity of light), the cross section is comparatively high; when $v = ac$, formation of this system and annihilation are equally probable. For $v > ac$, annihilation is more probable. The life of such a system is calcd. to be $\sim 5 \times 10^{-10}$ sec. C. F.

ALC
2111

Handwritten notes:
Matter theory

1302. Introduction to the Theory of Elementary Particles, Part II, by D. Ivaenko.

Uspekhi Fizicheskikh Nauk 32, p. 261-315, July 1947. (Previously listed by title as Abstract III 825). (In Russian)

This paper discusses cosmic rays, the distribution of elements and molecules, general questions on the relativity of the quantum mechanism (groups of transformation and invariance), wave functions, spin, equations for the relativity of quantum mechanics, La Grange's function, the theory of relationship, secondary quantum and statistics, and various theoretical difficulties, such as the problem of individual masses (polar hypothesis) and new hypotheses.

"Introduction to the Theory of Elementary Particles," Uspek. Fiz. Nauk., 32,
No. 2, 1947.

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX 1ST AND 2ND ORDERS

N *8*

685. New Consequences of the Quantum Theory of Gravitation,
by D. Ivanenko and A. Scholov. Doklady Akademii Nauk SSSR
58, p. 1633, 1947.

ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION

COMPONENTS MATERIAL INDEX AUTOMATIC INDEX

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
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4

The distribution of phosphorus in the plant organs in experiments with radioactive phosphorus". V. M. Klechkovskii, D. D. Ivanenko, V. B. Baga'ev, and V. V. Ruchinskii (Timirjazev Agr. Acad., Moscow). *Doklady Akad. Nauk S.S.S.R.* 58, 93-6(1947); *Chem. Zvest.* 1948, II, 713.—Soybeans were grown for 30 days in a water culture contg. Hellriegel nutrient mixt. with a complete P supply. Other plants were grown with a sharply deficient P supply (0.2 of the Hellriegel standard). Both groups of plants were then transferred for 7 days to a nutrient mixt. contg. no P and then for 16 days to a mixt. contg. 15 mg./l. of P_2O_5 prepd. from artificially radioactive P. Total P and radioactive P were detd. on various plant parts, the latter being detd. on the ashed residue by the use of a Geiger-Müller counter. Marked differences were observed between the P-starved and the P-satd. plants. The latter showed, in general, a much higher P content. In these plants the radioactive P was present in large amts. only in the roots; slightly over 40% was found in the plant parts above ground. In the P-starved plants there was more radioactive P in the portions above ground, the lower leaves contg. almost as much as the roots. The 2 groups of plants also showed marked differences in dry wt. The increase in this value during the last 16 days was almost twice as great for the P-starved plants as for the controls. M. G. M.

PA 60T81

USSR/Nuclear Physics - Particles, Elementary Dec 1947
Nuclear Physics - Stability

"Metastable Compounds of Elementary Particles,"
D. Ivanenko, Phys Inst, Moscow State U imeni M. V.
Lomonosov; A. Sokolov, Agr Acad imeni K. A. Timiryazev,
3½ pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVIII, No 7

Discusses systems whose stability is result of elec-
tric forces. Explains reliability of formation of
atom type atoms from two elementary particles. Sub-
mitted by Academician S. I. Vavilov, 24 Jul 1947.

60T81

IVANENKO, D. D.

Ivanenko, D. D. - "Toward a theory of the luminous electron, " Vestnik. most.
un-to, 1948, No. 11, p. 95-101 — Bibliog: p. 101

So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

PA 19/49T107

USSR/Nuclear Physics - Electrons, Sep/Oct 48
Emission of
Nuclear Physics - Electrons, Acceleration of

"Theory of the Luminescent Electron," D.
Ivanenko, A. Sokolov, 1/8 p

"Iz Ak Nauk SSSR, Ser Fiz" Vol XII, No 5

Describes results of authors' work on calculating
the emission spectra of electrons in activators
(A. Sokolov, "Vest Moskov U" 4, 77, 1947; D.
Ivanenko and A. Sokolov, "Dok Ak Nauk SSSR" 58,
1948). This is a complete translation.

19/49T107

Also: Dok. Akad Nauk SSSR, Nova Ser, Vol 59, No. 9

C 2
1951

New calculation of the isotope shift. H. D. Ivanenko and A. P. Tsindler (Moscow State Univ.). *Zhur. Eksp. Teor. Fiz.* 18, 631-7(1948).—The shift is calcd. for n Z electrons by soln. of the Dirac equation for the electron within and outside the nucleus, i.e. by electron functions taking into account the finite dimensions of the nucleus, without reference to the perturbation method, for a const. and an oscillator potential, the latter representing the interaction between an electron and a uniformly charged Thomson sphere. The results are numerically somewhat different from those of Rosenthal and Breit (*C.A.* 26, 8493). The decrease of the

probability of K -capture as compared with that calcd. for a point nucleus is calcd. for nuclei no. 27 and 87. N. Thon

"Review of H. A. Bethe's Book 'Elementary Nuclear Theory'." (US) Uspek. Fiz.
Nauk, 35, No. 4, 1948.

PA 48/49T91

IVANENKO. D.

USSR/Nuclear Physics - Radioactivity
Nuclear Physics - Tracer Atoms

Dec 48

Review of S. V. Al'tshuler's "Tracer Atoms,"
D. Ivanenko, 3 pp

"Voprosy Fiz Nauk" Vol XXXVI, No 4

Discusses important problem of methods using radioactive atoms which permit observation of their movement and disintegration by means of their radiation. This principle has been used with excellent results to determine quantities of matter so small that spectral analysis is not practical. Unfortunately the few good sections of the brochure are drowned in a mass of errors.

48/49T91

USSR/Nuclear Physics - Radio-activity (Contd) Dec 48

and fiction. Author is guilty of a serious political error because he does not indicate the rightful place of Soviet science in this field.

48/49T91

537.122

1889. On the theory of the "luminescent" electron. IVANENKO, D. AND SOKOLOV, A. *Dokl. Akad. Nauk, SSSR* 99 (No. 9) 1551-4 (1948) *In Russian*.—A full theory of the e.m. radiation from electrons accelerated to $\sim 10^6$ eV in betatrons is given. As the intensities of higher multipoles of the order n are obtained by multiplying the dipole intensity by n , consideration of non-relativistic velocities may simply be based on dipole radiation. The ultra-relativistic case, however, requires a separate investigation of the dependence of the distribution of radiation on n . Integration of the vector potential by aid of Poynting's vector (giving the energy distribution of the n -th harmonic) and summation yields the distribution of the radiation in space which is practically concentrated in a plane.

Integration of the energy formula gives the spectral distribution in ordinals of the harmonics. The latter formula is inconvenient as the harmonic ordinal numbers appear as argument and as ordinals of Bessel functions as well. The methods of approximation of Brillouin, Wentzel and Kramers applied to a second order diff. equation yield a good approximation for large values of the argument. A method given previously by one of the authors enables the approximation to be extended over the whole range of values of the argument, i.e. to exclude discontinuities. Two extreme cases are then discussed and an expression for the rate of energy decrease at extremely high frequencies is derived. n. v. k.

753
L

Moscow State Univ. im M. V. Lomonosov; Agr. Acad. im K. A. Timiryazev

450-55A METALLURGICAL LITERATURE CLASSIFICATION

IVANENKO, D. D.

PK70TS

USSR/Chemistry - Ions, Electrolytic,
Exchange of
Chemistry - Phosphates

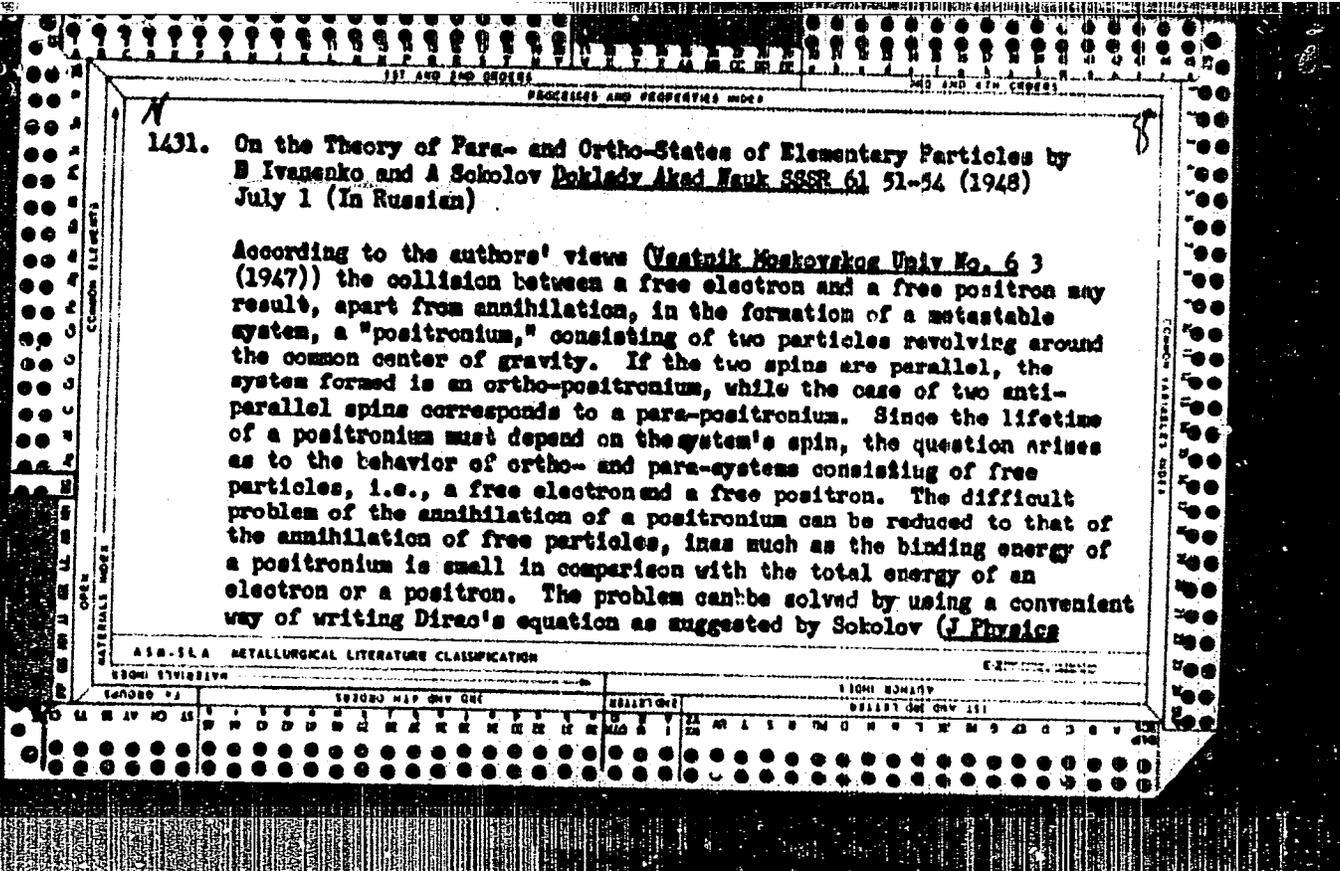
Jun 1948

"The Dynamics of Ion Exchange," D. D. Ivanenko, V. V. Rachinskiy, T. B. Gapon, E. N. Gapon, Moscow Agr Acad imeni K. A. Timiryazev, 4 pp

"Dok Ak Nauk SSSR" Vol IX, No 7

Study of the dynamics of the exchange of phosphate ions. Submitted Mar 1948.

7048



USSR 9 363 (1945)) and by Kan (Doklady Akad Nauk SSSR 50 139 (1945)).
For the case of a two-photon annihilation of a free electron-positron system, a formula for the effective cross section is obtained which reveals the important fact that for the ortho-state the annihilation probability is equal to zero, while for the para-state this probability is twice as large as the value given by Dirac for the case when the two spins have an arbitrary orientation. From these data the corresponding values for the positronia are derived (zero for the ortho-system). The lifetime of an ortho-positronium can be determined by first computing the effective cross section of a three-photon annihilation of a free system. It is found that for an ortho-system this cross section is roughly $1/137$ that obtained for the two-photon annihilation of a para-system. Neglecting the relativistic effects, the ratio of the lifetimes of ortho- and para-positronia is then found to be 1.7×10^3 . This same reasoning can, of course, be applied to ortho- and para-systems of other particles.

Phys. Inst., Moscow State University Im. M. V. Lomonosov.

TERLETSKIY, Ya.P.; IVANENKO, D.D., otvetstvennyy redaktor; ORLOVA, N.S.,
tekhnicheskiiy redaktor

[Dynamic and statistical laws of physics] Dinamicheskie i statisti-
cheskie zakony fiziki. [Moskva] Izd-vo Moskovskogo univ., 1949. 95 p.
[Microfilm] (MLRA 9:11)
(Physics)

IVANENKO, D. D.

Classical theory of magnetic fields. Moskva, Gos. izd-vo tekhn.-teoret. lit-ry,
1949. 432 p. (50-22164)

QC67C.I9

IVANENKO, D.

"Review of M. I. Korsunskiy's Book 'Atomic Nuclei'," Uspekhi. Fiz. Nauk 38, No. 4,
1949.

PA 1/50T82

IVANENKO, D.

USSR/Nuclear Physics - Bombardment Aug 49
Ionization
Pair Production

"Radiation of the Ultraluminous Type During
the Passage of Charged Particles Through a
Ferromagnetic," D. Ivanenko, V. Gurevich,
Moscow State U Imeni M. V. Lomonosov, Tbilisi
State U Imeni I. V. Stalin, 4 pp

"Dok Ak Nauk SSSR" Vol LXVII, No 6

Attempts to show that when charged particles
pass through a ferromagnetic, along with ion-
ization losses, radiation of the ultraluminous

1/50T82

USSR/Nuclear Physics - Bombardment Aug 49
(contd)

Cherenkov type if v (speed of particle) exceeds
 c/n_0 , where n_0 is the static magnetic per-
meability of the medium (where $\epsilon = n^2$ is set
equal to 1), n being the index of refraction,
must occur. Submitted by Acad S. I. Vavilov
28 Jun 49.

1/50T82

CA

JA

Statistical model of nuclear envelopes D. D. Ivanenko
and V. Rolichev. *Guide Russ. Sci. Periodical Lit. Brisk.*
Sov. Natl. Lab. J. 313-10 (1959) (English translation)
See C. A. 44, 9885d. F. J. C.

IVANENKO, I. I.; SKRIBNICHENKO, V. A.; PUMERANICHUK, YE. A.

Ivanenko wrote about theory of structure of atom nucleus in a book "Klassicheskaya Teoriya Pol'ya."

Soviet Source: Nauka i Zhizn, #4, Apr. 50, Moscow.
State University.

Abstract on file in Library of Congress, Report No. 21229

IVANENKO, D.; SOKOLOV, A. A.

Classical Theory of Fields (Moscow-Leningrad, State Technical Press, 1949.
Reviewed by M. F. Shirokov, Sov. Kniga, No. 8, 1950.

Report U-3081, 16 Jan 53

IVANENKO, D.

4692 Capture of Slow β Electrons in Outer Orbits of Heavy Atoms. D. Ivanenko and V. Lohnev, *Zhur. Eksp. i Teoret. Fiz.* 20, 91-2(1950)(Letter to the editor, in Russian).

Recent studies of the spectra of soft β particles (Lecoln et al, *Compt. rend.* 217, 108(1943); *ibid.* 227, 121(1948)) have shown that the value of the decay probability, as measured

directly from the decrease of activity, differs considerably from the value obtained from recurrence formulas for the members of the radioactive family in equilibrium. Several authors (Daudet et al, *Compt. rend.* 224, 1427(1947); *ibid.* 225, 290(1947); *J. phys. Radium* 8, 238(1947); Sherk, *Phys. Rev.* 75, 789(1949)) have attributed this effect to a new type of β decay, which is a "K-creation" or an immediate capture of the electron into one of the atomic levels of the discrete spectrum. However, such a process could hardly affect the probability of the decay by more than a few per cent, because of the almost total orthogonality of the wave functions of the electrons in the shells of heavy nuclei Z and $Z+1$. An attempt is made here to explain the phenomenon in question by a different mechanism, viz., by a capture of an already emitted β particle into an outer shell of an atom, this process being accompanied by an emission of a photon.

CA

3A

Statistical model of nuclear envelopes. D. D. Ivanenko and V. Rodichev (Phys. Inst., M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 70, 605-8 (1950); cf. *C.A.* 43, 600Kr, 7321d; 42, 8612g. --By employing the scheme of shell construction, $(1s)^2(2p)^6(2s)^2(3d)^{10}$...leading to closed shells with nos. 2, 8, 10, 20, 50, 82, 126 particles, I. and R. set up the equations for the Thomas-Fermi statistical method of finding closed shells. A numerical calcn. gives the nos. 2, 10, 28, 60, 110 in completed shells. For the first 3 shells the construction is: 2 $(1s)^2$ K-shell; 10 $(1s)^2(2p)^6(2s)^2$ K + L shells; 28 $(1s)^2(2p)^6(2s)^2(3d)^{10}(3p)^6(3s)^2$ K + L + M shells. The discrepancies are attributed to omission of spin and other anisotropic forces in the analysis.

V. H. Murray

PROCESSES AND PROPERTIES AND

8

3837 The influence of the Nuclear Field on the Movement of Electrons. D. Ivanenko and V. Rodichev. Doklady Akad. Nauk S. S. R. 70, 201-4(1950)(in Russian).
 The behavior of atomic electrons at close distances from the nucleus reveals the existence of interactions other than

the electromagnetic and the electrostatic. In previous works the authors have predicted the existence of an attraction between the electron and the neutron (Zhur. Eksp. i Teoret. Fiz. 11, 198(1941)) and, by taking into consideration the size of the nucleus, have introduced certain corrections into the expressions for the electron wave functions (ibid. 18, 434(1948)). In the present paper a further theoretical investigation is made of these "proximo-nuclear" effects, comprising both (1) the known phenomena of hyperfine structure due to the nuclear magnetic moment and to isotopic displacement due to the motion of the nucleus, and (2) the more recently studied, mainly hypothetical, effects that must be attributed to the "smearing-out" of the nucleon's electric charge, to the size of the nucleus, or to the specific nuclear interaction between nucleons and electrons.

Phys. Faculty, Moscow State Univ. im M. V. Lomonosov

ASH-11A METALLURGICAL LITERATURE CLASSIFICATION

1950 1949 1948 1947 1946 1945 1944 1943 1942 1941 1940 1939 1938 1937 1936 1935 1934 1933 1932 1931 1930 1929 1928 1927 1926 1925 1924 1923 1922 1921 1920 1919 1918 1917 1916 1915 1914 1913 1912 1911 1910 1909 1908 1907 1906 1905 1904 1903 1902 1901 1900 1899 1898 1897 1896 1895 1894 1893 1892 1891 1890 1889 1888 1887 1886 1885 1884 1883 1882 1881 1880 1879 1878 1877 1876 1875 1874 1873 1872 1871 1870 1869 1868 1867 1866 1865 1864 1863 1862 1861 1860 1859 1858 1857 1856 1855 1854 1853 1852 1851 1850 1849 1848 1847 1846 1845 1844 1843 1842 1841 1840 1839 1838 1837 1836 1835 1834 1833 1832 1831 1830 1829 1828 1827 1826 1825 1824 1823 1822 1821 1820 1819 1818 1817 1816 1815 1814 1813 1812 1811 1810 1809 1808 1807 1806 1805 1804 1803 1802 1801 1800 1799 1798 1797 1796 1795 1794 1793 1792 1791 1790 1789 1788 1787 1786 1785 1784 1783 1782 1781 1780 1779 1778 1777 1776 1775 1774 1773 1772 1771 1770 1769 1768 1767 1766 1765 1764 1763 1762 1761 1760 1759 1758 1757 1756 1755 1754 1753 1752 1751 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438 437 436 435 434 433 432 431 430 429 428 427 426 425 424 423 422 421 420 419 418 417 416 415 414 413 412 411 410 409 408 407 406 405 404 403 402 401 400 399 398 397 396 395 394 393 392 391 390 389 388 387 386 385 384 383 382 381 380 379 378 377 376 375 374 373 372 371 370 369 368 367 366 365 364 363 362 361 360 359 358 357 356 355 354 353 352 351 350 349 348 347 346 345 344 343 342 341 340 339 338 337 336 335 334 333 332 331 330 329 328 327 326 325 324 323 322 321 320 319 318 317 316 315 314 313 312 311 310 309 308 307 306 305 304 303 302 301 300 299 298 297 296 295 294 293 292 291 290 289 288 287 286 285 284 283 282 281 280 279 278 277 276 275 274 273 272 271 270 269 268 267 266 265 264 263 262 261 260 259 258 257 256 255 254 253 252 251 250 249 248 247 246 245 244 243 242 241 240 239 238 237 236 235 234 233 232 231 230 229 228 227 226 225 224 223 222 221 220 219 218 217 216 215 214 213 212 211 210 209 208 207 206 205 204 203 202 201 200 199 198 197 196 195 194 193 192 191 190 189 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IVANENKO, D.

1987

GRAVITATIONAL RADIATION FRICTION. D. D. Ivanenko and A. M. Brodskii. Doklady Akad. Nauk S.S.S.R. 75, 519-22(1956) Dec. 1. (In Russian)

It has been qualitatively shown by one of the authors (Ivanenko, Uspekhi Fiz. Nauk 32, No. 2, 3(1947)) that, besides electromagnetic and meson frictions, there must exist a gravitational radiation friction that should be taken into account when formulating equations of motion of a single particle. These considerations are developed here and, in the framework of the classical theory, a computation is made of the deceleration produced by the radiation of gravitational waves in the case of a point particle; the approximation used can be called half-relativistic. The equation of motion employed is the equation of a geodesic line in a space distorted by its own gravitational field which is assumed to be weak and obeying Einstein's equations in a linear approximation. It may be noted that such an approach is applicable to other problems of gravitation, such as that of the gravitational vacuum.

Classical theory of magnetic fields. Izd. 2. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1951. 479 p. (51-38952)

QC670.I9 1951

CU NH

SECRET

Ivanenko, D.

Ivanenko, D. Gomba's, P. Statistical theory of the atom and its application. P. 319

SO: Uspekhi Achievements in Physical Sciences, 43, No. 2 (Feb. 1951)
(Bibliography)

CA

Multiple generation of mesons. D. D. Ivachenko and V. Lebedev (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk. S.S.S.R.* 80, 357-60 (1961).--The act of the multiple generation of mesons is treated as a first-order process. The probability of emitting n mesons within the energy interval $\epsilon_n, \epsilon_n + \delta\epsilon_n$ upon the collision of nucleons can be detd. as the probability of the quantum transition of a system composed of 2 nucleons, from the initial state E_i to a final state E_f . From a math. analysis it is detd. that the complex character of the nuclear forces may be due to the multiple nuclear forces proposed by I. and L. as well as to the transfer of the interaction of the mesons of different masses and spins.

J. R. Leach

Astrophysics

S.A.

Sect. A

521.26

4876. Stability of astronomical systems. D. D.
LYANSKO, A. M. BODOLIZ AND L. P. GINZBURG.
Dokl. Akad. Nauk SSSR, 88, 565-7 (No. 4, 1951) In
Russian.

It is argued that the determination of stability in
certain astronomical systems can be arrived at
through the consideration of the temperature of a
weak gravitational field included in any such system.
Formulae are given for the calculation of the density
of energy of such heat radiation, which is found to
correspond with the limit of the system. Since the
density of energy of a gravitational field is fixed by
the degree of curvature of space at a given point, it
appears that the stability of a system can be estimated
by the relations there subsisting between radius,
temperature and mass. A table is appended of
critical temperatures found to be related to masses
and radii of the solar and certain planetary systems.

A. CHALKIN

Moscow State University im. Lomonosov

IVANENKO, D.

USSR/Nuclear Physics - Beta Decay

11 Dec 51

"Twin Beta Decay," D. Ivanenko, N. Kolesnikov, Phys
Faculty, Moscow State U imeni M. V. Lomonosov

"Dok Ak Nauk SSSR" Vol LXXXI, No 5, pp 771-773

Makes the assumption that there can be one more
variant of neutrino-less $\beta\beta$ -decay by reviving the
notion concerning the existence of an immediate di-
rect interaction of the nucleon pair (in one way or
another sufficiently closely connected together)
with the 2-electron field (the field of the pairs of
electrons-positrons) which are independent of the
neutrino. Submitted by Acad D.V. Skobel'tsyn
10 Oct 51.

210T77

Review

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Mathematical Reviews
Vol. 14 No. 10
Nov. 1953
Mathematical Physics

Sokolov, A., & Ivanenko, D. *Kvantovaya teoriya polya. (Izbrannye voprosy.)* [The quantum theory of fields. (Selected questions.)] Gosudarstv. izdat. Tehn.-Teor. Lit. Moscow-Leningrad, 1952. 780 pp. 14.30 rubles.

The book consists of two separate parts. Part I, "Quantum electrodynamics" by A. Sokolov (pp. 9-480), is based on a lecture course for students specializing in theoretical physics. Particular consideration is given to papers published in Russia. Knowledge of the authors' "Classical theory of fields" [2nd ed., Gosizdat, Moscow-Leningrad, 1951; see these Rev. 13, 95 for a review of the 1st ed.] is presupposed. The quantum theory of the electron and of the electromagnetic field is presented in the way customary before the use of the interaction representation. The quantum theory of radiation is developed in considerable detail and applied to a number of problems. (This section of the book is about equivalent to Heitler's "Quantum theory of radiation" [2nd ed., Oxford, 1944].) The theory of positronium and of cosmic radiation processes is outlined. A chapter on the theory of the vacuum covers topics hardly accessible elsewhere in textbooks, like self-energies, regularization methods, radiative corrections, Lamb-shift, infrared catastrophe, etc. There is also an interesting paragraph on the domain of applicability of quantum theory where the Soviet point of view of the interpretation of quantum mechanics is presented. We read, for instance, on p. 181:

over

Available : Library of Congress

IV-NENKO, D., LEBEDEV V.

Nuclear Physics

Multiple processes in reciprocal action. Zhur. eksp. i teor. fiz. 22 No. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

...nonlinear and nonlinearity in the theory of ...
...Levchenko and A. ...
...Moscow ...
...The formation of ...
...collision of 2 nucleons is created ...
...nonlinear energy for the ...
...with the meson field. The ...
...may exist when exceed ...
...which can be observed in ...
...of the ...
...Levchenko

IVANENKO, V.

Mathematical Reviews
Vol. 14 No. 8
Sept. 1953
Mathematical Physios.

Ivanenko, D., and Kolesnikov, N. The electrino hypothesis. Doklady Akad. Nauk SSSR (N.S.) 87, 923-925 (1952). (Russian)

Encouraged by de Broglie's method of fusion and by evidence of the existence of a particle, the electrino, of half-life about 10^{-10} secs. and mass about twice that of the electron, the authors consider the possibility of explaining the β -decay spectrum as arising from the disintegration of electrinos. They find that the resulting theoretical energy profile agrees with observations for large energies of the emitted electron. *A. J. Coleman (Toronto, Ont.).*

IVANENKO, D. D. Prof,

"Contribution to the Theory of the Isotopic Shift," a paper given at the
All-University Scientific Conference "Lomonosov Lectures", Vest. Mosk. Un., No.8, 1953.

Translaton U-7895, 1 Mar 56

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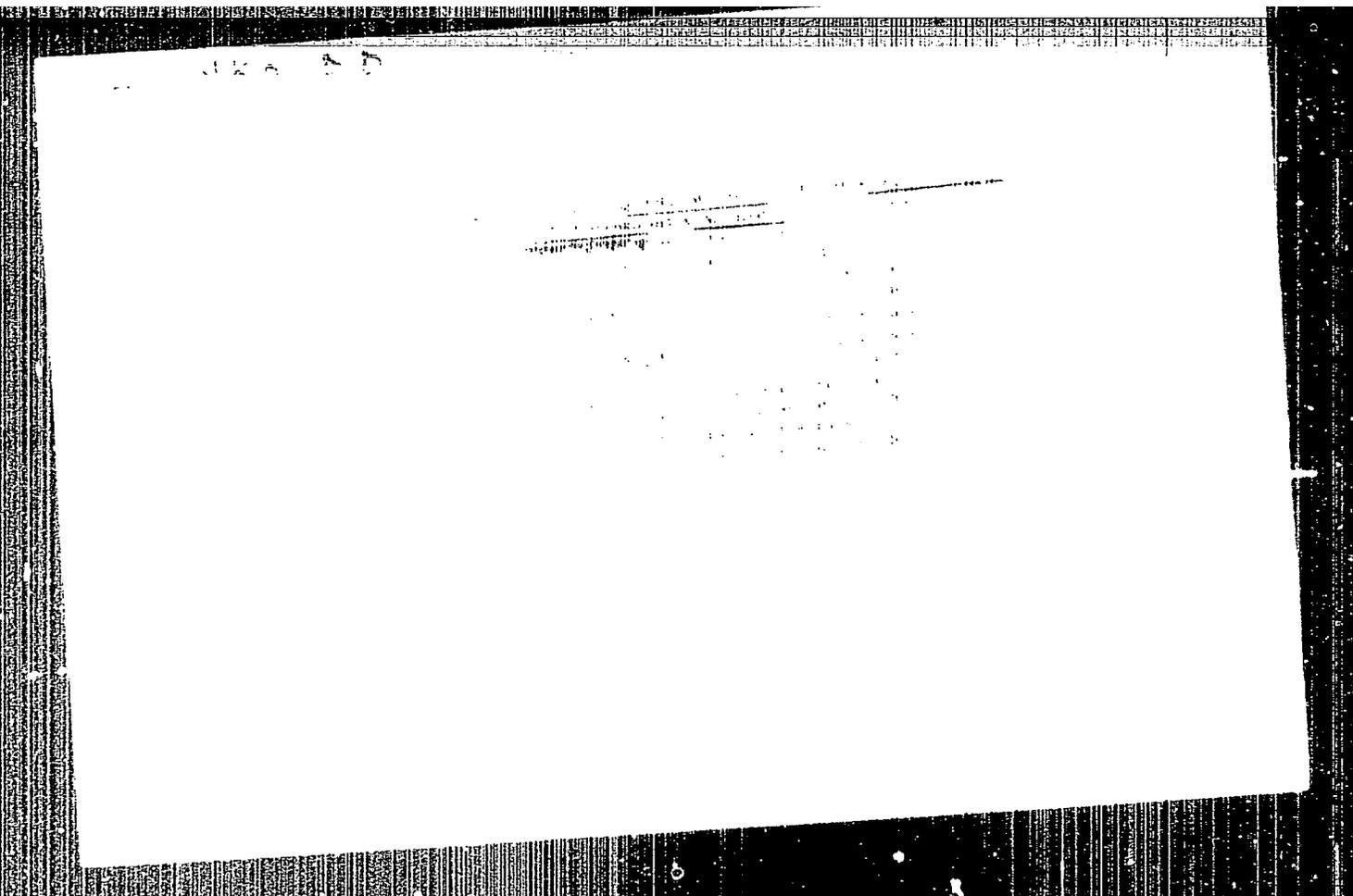
519 165.2

5592 α -disintegration of the nuclei of the type
IN: Y. I. VASILENKO AND S. LARIN Letter in
Zh. teoret. i eksper. fiz., No. 3, 339-61 (1953) In
Russian

See Abstr. 4966 (1949). Compares the $R-Z$ curves
obtained by 4 methods (1) $R = 1.5 \times 10^{-11} \times M^{1/2}$ cm;
(2) from total cross-sections (see Abstr. 3029 (1951));
(3) radii of "mirror" nuclei obtained from the energy
of the β -disintegration and (4) from α -disintegration.
Kinks in the curves (particularly in (3) and (4))
coincide with some of the known critical numbers of
nucleons ($Z = 8, 14, 20, 29, 50, 82, 90$). The
divergences between the curves are discussed.

F. LACHMANN

OmL 1954



IVANENKO, D. D.

Sep 53

USSR/Nuclear Physics - Deuterium Lamb-Shift

"The Lamb-Shift for Hydrogen and Deuterium" [translation into Russian with comments by Yu. M. Shirokov]

Usp Fiz Nauk, Vol 51, No 1, pp 115-129

Translation of E. Salpeter's article in Phys Rev 89, 92 (1953). Translator appends 6 supplementary Russian-language references on the Lamb-shift and other radiative corrections: 1. V. F. Vayskopf, Usp Fiz Nauk, 41, 165 (1950). 2. Ya. A. Smorodinskiy, Usp Fiz Nauk, 39, 325 (1949). 3. Scientific abstract symposium 'Problemy Sovremennoy Fiziki', No 6, 1948; No 1, 1950; No 11, 1951. 4. Sdvig Urovney Atomnykh Elektronov (Shift of Levels of Atomic Electrons), a symposium, Foreign Literature Press, Moscow, 1950. 5. A. A. Sokolov and D. D. Ivanenko, Kvantovaya Teoriya Polya (Quantum Theory of the Field), Gostekhizdat (State Tech Press), Moscow, 1952. 6. W. Lamb, "Fine Structure of the Hydrogen Atom" [translated from English into Russian], Usp Fiz Nauk 45, 553 (1951).

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IVANENKO, D.

*RT-989 (Interaction of gravitation with a particle vacuum) Vzaimodeistvie gravitatsii s vakuumom chastits.

DOKLADY AKADEMII NAUK SSSR, 62(4): 731-734, 1953.

IVANENKO, D.

1 Jan 53

USSR/Physics - Periodic System

"Theory of Periodic System of Elements," D. Ivanenko and S. Larin, Faculty of Phys,
Moscow State U

DAN SSSR, Vol 88, No 1, pp 45-49

Some discrepancies in computation of critical values of Z, using statistical method
of Thomas-Fermi, are caused by lack of consideration of interchangeable interaction of
electrons in the initial Thomas-Fermi model. Authors attempt to introduce more
accuracy into eqs of Thomas-Fermi-Dirac. Indebted to A. B. Vasil'eva and L. I.
Morozova. Received 8 Oct 52.

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Mathematical Reviews
Vol. 14 No. 8
Sept. 1953
Mathematical Physics.

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Ivanenko, D., Kurdgelaidze, D., and Larin, S. Remarks on nonlinear mesodynamics. Doklady Akad. Nauk SSSR (N.S.) 88, 245-247 (1953). (Russian)
In the equation $\Delta\varphi - k^2\varphi - \lambda\varphi = -4\pi g\rho$, for the scalar meson function φ , the density ρ is replaced by its Thomas-Fermi approximation and the behaviour of the solution in the extreme relativistic and non-relativistic cases is briefly discussed.
A. J. Coleman (Toronto, Ont.).

IVANENKO, D.

11 Mar 53

USSR/Nuclear Physics-Isotopes

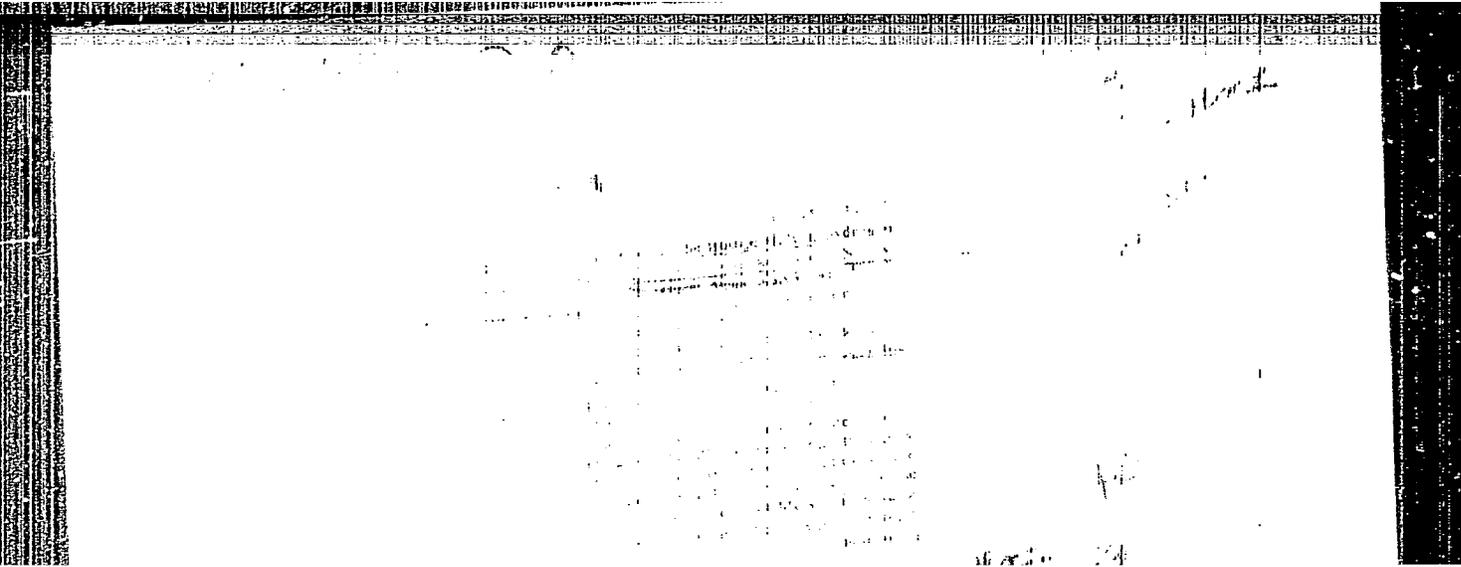
"Theory of Isotopic Displacement," D. Ivanenko and N. Kolesnikov

DAN SSSR, Vol 89, No 2, pp 253-256

Note that jumps of curve of isotopic displacements should be related to behavior of nuclear volumes and radii, which do not vary monotonously as expected. Presented by Acad A.A. Lebedev. Recd 11 Oct 52.

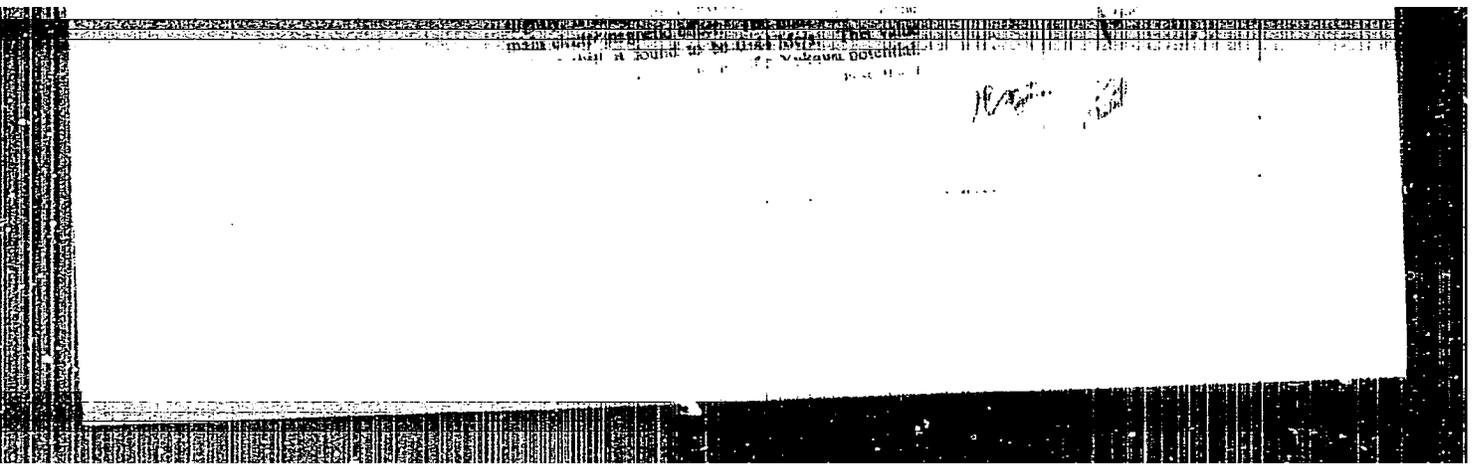
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IVANENKO, D.

USSR .

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Ivanenko, D., and Brodskii, A. Interaction of gravity with mesonic particles. Dokl. Akad. Nauk SSSR (N.S.) 92, 731-734 (1953). (Russian)

I - F/W

A treatment of the interaction of the gravitational field with the vacuum of scalar and pseudoscalar particles (mesons) is based on the quantum theory of gravitation of the first author [see, e.g., A. Sokolov and D. Ivanenko, Quantum theory of fields, Gostehizdat, Moscow-Leningrad, 1952, Part II, Section 5; MR 14, 1044]. An expression is given for the Lagrange function of the problem, and used to derive the equations of motion and the commutation relations. It is then shown that one can determine an action function W of the problem. Explicit calculations are carried out under the assumption that the gravitational field is so weak that it can be described by linear equations. An iteration procedure is used to determine the action function W_0 for the vacuum in second approximation, that is the approximation which can be obtained with linear field equations. The calculation of higher approximations would require the use of non-linear field equations. The results obtained can be used to calculate the probabilities of effects which are due to the polarization of the vacuum, for instance, the formation of pairs of particles.

B. Gora.

IVANENKO, D.D., redaktor; BRODSKIY, A.M., [translator]

[Recent developments in quantum electrodynamics] Novyeishie
razvitie kvantovoi elektrodinamiki; sbornik statei. Pod red.
D.D.Ivanenko. Moskva, Izd-vo inostrannoi lit-ry, 1954. 393 p.
(Quantum theory) (Nuclear physics) (MLRA 7:7)